



## Karolinska Institutet

Department of Neuroscience  
Experimental Dermatology Unit

Stockholm, April 26, 2016

**To: Los Angeles City Council, Mayor, and Los Angeles County Department of Health**

**Subject: OPPOSITION TO CITY WIDE WIFI/CITYLINKLA PROGRAM DUE TO HEALTH DANGERS POSED BY WIFI TRANSMITTERS RADIOFREQUENCY RADIATION EMISSIONS.**

Dear Honorable Public Officials and City Decision Makers,

My name is Olle Johansson, PhD, and I am an Associate Professor at the Karolinska Institute, home of the famous Nobel Prize in Physiology or Medicine. I work in the Department of Neuroscience, as the head of The Experimental Dermatology Unit. I have worked for many years in the field of EMF (electromagnetic fields) radiation and health effects, and am counted among my peers as a world-leading authority. Among many achievements I have coined the term "screen dermatitis". I have published more than 600 original articles, reviews, book chapters, statements, resolutions, and conference reports, within the fields of basic and applied neuroscience, dermatoscience, epidemiology, and biophysiology. I am also one of the authors behind The Benevento Resolution (2006), The Venice Resolution (2008), The London Resolution (2009), The Bioinitiative Report (2007; updated 2012) as well as the Seletun Statement (2010), all dealing with artificial electromagnetic fields and health. [For a short excerpt from my CV, please, see <http://vetapedia.se/olle-johansson-associate-professor-ki/>]

I am writing to urge you to oppose public exposure from WiFi. Wireless technology uses transmitters that emit electromagnetic waves creating radiation and electromagnetic fields. The research attached and cited shows that, at the power levels required for WiFi to operate reliably over the project's large areas, the radiofrequency radiation has significant biological effects, many of which - from a human perspective - must be considered as very serious. Thus, a rapidly accumulating body of scientific evidence of harm to health and well-being constitute warnings that adverse health effects can occur with prolonged exposures to very low-intensity electromagnetic fields at biologically active frequencies or frequency combinations. The consequences of such exposures can be especially grave for electrohypersensitive individuals and children. The WiFi industry uses inapplicable health safety standards, which I will explain below, and flawed reasoning to promote WiFi safety.

The possibility of any health consequences of chronic exposure to pulsed microwave exposure from WiFi is often denied. However, in the current field of science, the present state-of-the-art regarding this issue is clear, there are harmful biological effects from electromagnetic fields emitted by wireless transmitters such as those used by WiFi.

Wireless communication is now being implemented in our daily life in a very fast way. At the same time, it is becoming more and more obvious that the exposure to electromagnetic fields not only can induce acute thermal effects to living organisms, but also

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non-thermal effects, the latter often after longer exposures. This has been demonstrated in a very large number of studies which includes cellular DNA-damage, disruptions and alterations of cellular functions like increases in intracellular stimulatory pathways and calcium handling, disruption of tissue structures like the blood-brain barrier, impact on vessel and immune functions, and loss of fertility. Scientists can observe and reproduce these effects in controlled laboratory experiments, epidemiological and ecological data derived from long-term exposures. Reflected in these well-designed, case-control studies is the link all the way from molecular and cellular effects to the living organism up to the induction and proliferation of diseases observed in humans. It should be noted that we are not the only species at jeopardy, practically all animals and plants may be at stake.

Therefore, policy makers should immediately and strictly control exposure by defining biologically-based maximal exposure guidelines. These guidelines should take into account long-term, non-thermal effects, including especially vulnerable groups, such as the elderly, the ill, the genetically and/or immunologically challenged, children, fetuses, and persons with the functional impairment electrohypersensitivity, none of which are currently being accounted for by your FCC Safety Guidelines.

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In November, 2009, a Scientific Panel comprised of international experts on the biological effects of electromagnetic fields met in Seletun, Norway, for three days of intensive discussion on existing scientific evidence and public health implications of the unprecedented global exposures to artificial electromagnetic fields from telecommunications and electric power technologies. This meeting was a direct consequence of on-going discussions since the mid-nineties, when cellular communications infrastructure began to rapidly proliferate. From this decade many resolutions, like the Benevento (2006), Venice (2008) and London (2009) Resolutions were created to protect health. Important conclusions were drawn from the 600-page Bioinitiative Report published August 31, 2007, which was a review of over 2,000 studies showing biological effects from electromagnetic radiation at non-thermal levels of exposure, and which later was partly published in the medical journal *Pathophysiology* (Volume 16, 2009). The Bioinitiative Report has since been updated (2012).

I have worked for many years trying to clarify the dangers of this 24/7, whole-body, artificial EMF irradiation. Along this struggle I have been proud to coauthor some of the most important compilations of the up-to-date knowledge, including (among many) the ones above.

The Seletun Scientific Statement (2010) recommends that lower limits ( $<0.017 \mu\text{W}/\text{cm}^2$ ) be established for electromagnetic fields and wireless exposures, based on scientific studies reporting health impacts at much lower exposure levels. Many researchers now believe the existing safety limits are inadequate to protect public health because they do not consider prolonged exposure to lower emission levels that are now widespread and do not take into account non-thermal effects. It should be noted that only one hygienic safety value ever has been proposed:  $0.0000000001\text{-}0.0000000000000001 \mu\text{W}/\text{cm}^2$  – this is the natural background during normal cosmic activities; proposed by myself, already in 1997, as a

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genuine hygienic safety value.

The body of evidence on electromagnetic fields requires a new approach to protection of public health; it needs to consider the growth and development of the fetus, and children; and should argue for strong preventive actions. These conclusions are built upon prior scientific and public health reports documenting the following:

- Low-intensity (non-thermal) bioeffects and adverse health effects are demonstrated at levels significantly below existing exposure standards.
- ICNIRP/WHO and IEEE/FCC public safety limits are inadequate and obsolete with respect to prolonged, low-intensity exposures.
- New, biologically-based public exposure standards are urgently needed to protect public health world-wide.
- It is not in the public interest to wait.
- Electromagnetic radiation exposures should be reduced now in keeping with traditional public health principles. This is justified given the abundant evidence that biological effects and adverse health effects are occurring at exposure levels hundreds to thousands of times, or more, below existing public safety standards around the world.
- There is a need for mandatory pre-market assessments of emissions and risks before deployment of new wireless technologies. There should be convincing evidence that products do not cause health harm before marketing. Such decisions have to be quickly revised given new evidence.
- The use of telephone lines (land-lines) or fiber optic cables for Citywide WiFi/Citylink LA energy conservation infrastructure is recommended. Utilities should choose options that do not create new, community-wide exposures from wireless components of Citywide WiFi-type projects. Future health risks from prolonged or repetitive wireless exposures of Citywide WiFi-type systems may be avoided by using fiber-optic cable with wired/corded connections to the internet. Energy conservation is endorsed but not at the risk of exposing millions of families in their homes to a new, involuntary source of wireless radiofrequency radiation, the effect of which on their health is known to be harmful.

Furthermore, based on the available scientific data, the Seletun Scientific Panel states that:

- Sensitive populations (for example, the elderly, the ill, the genetically and/or immunologically challenged) and children and fetuses may be additionally vulnerable to health risks; their exposures are largely involuntary and they are less protected by existing public safety standards.
- It is well established that children are more vulnerable to health risks from environmental toxins in general.
- The Panel strongly recommends against the exposure from wireless systems of children of any age.
- The Panel strongly recommends against the exposure from wireless systems of pregnant women.

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You often hear about "safe levels" of exposure and too many times, 'experts' have falsely claimed to be experts in the field. Such fields were for instance: DDT, X-ray, radioactivity, smoking, asbestos, BSE, heavy metal exposure, depleted uranium, etc., etc., etc., where the "no risk" flag was raised. Later on, the same flag had to be quickly lowered, many times after enormous economic costs and suffering of many human beings. "The protection from exposure to electromagnetic fields" issue is along those lines. It is now important to clearly identify the background and employment of every 'expert' in different scientific committees, and likewise especially if they subsequently sit on the industry's chairs. It is, of course, very important (maybe even more important?) to also let 'whistleblowers' speak at conferences, to support them with equal amounts of funding (or even more?). Of great concern is those scientists and other 'experts' who, already from the very beginning, have declared that a certain source or type of irradiation, or a specified wireless product, is 100% safe – sometimes even before having properly examined them!

In the case of "protection from exposure to electromagnetic fields", it is thus of paramount importance to act from a prudence avoidance point of view. Anything else would be highly hazardous! Total transparency of information is key here. I believe consumers are very tired of always getting the complete truth years after a catastrophe already has taken place. For instance, it shall be noted, that today's recommended values for wireless systems, the SAR-value, are just recommendations, and not safety levels. Since scientists observe biological effects at as low as 20 microWatts/kg, is it then really safe to irradiate humans with 2,000,000 microW/kg (with 100,000 times stronger radiation!), which is the current government recommendation level for us? And, furthermore, it is very strange to see, over and over again, that highly relevant scientific information is suppressed or even left out in various official documents, high up in the governmental apparatus of society. This is not something that the consumers will gain anything good from, and, still, the official declaration or explanation (from experts and politicians) very often is: *"If we (=the experts) would let everything out in the open, people would be very scared and they would panic."* Personally, I have never seen this happen, but instead I have frequently seen great disappointment from citizens who afterwards have realized they have been fooled by their own experts and their own politicians.

Another misunderstanding is the use of scientific publications (as the tobacco industry did for many years) as 'weights' to balance each other. But you can NEVER balance a report showing a negative health effect with one showing nothing! This is a misunderstanding which, unfortunately, is very often used both by the industrial representatives as well as official authorities. The general audience, naturally, easily is fooled by such an argumentation, but if a deadly poisonous snake bites you, what good does it do you that there are 100 harmless snakes around?

In many commentaries, debate articles and public lectures - for the last 20-30 years – I have urged that completely independent research projects must be inaugurated immediately to ensure our public health. These projects must be entirely independent of all types of

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commercial interests; public health can not have a price-tag! It is also of paramount importance that scientists involved in such projects must be free of any carrier considerations and that the funding needed is covered to 100%. This is the clear responsibility of the democratically elected body of every country.

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Many WiFi base stations are close to beds, kitchens, playrooms, and similar locations. These wireless systems are never off, and the exposure is not voluntary. The WiFi is being forced on citizens everywhere. Based on this, the inauguration of yet more and more WiFi with grudging and involuntary exposure of millions to billions of human beings to pulsed microwave radiation should immediately be prohibited.

Just as we are learning that cell phones are associated with brain tumours, why are we installing the same technology next to, or in, everyone's homes, often with no legal right or practical possibility to opt out? Thousands of people have complained of tinnitus, headaches, nausea, sleeplessness, heart arrhythmia, and other symptoms after WiFi was installed. Wireless technology is nowadays considered a public health hazard, and already lawsuits have been won. Such systems can violate already high FCC/ICNIRP recommended limits on human exposure to microwave radiation, and are being installed even as people are developing electrohypersensitivity which in Sweden is a recognized functional impairment. There are also reports of WiFi and similar systems interference with pacemakers and other implants. Should we not value our health, and the health of our family and friends?

There is also emerging evidence that wireless, non-ionizing radiation (from cell phones, wifi, and smart meters) harms wildlife and damages trees. There have been direct reports of such radiation affecting vital bee populations, disturbing bird habitats, and interfering with avian navigational systems.

The conversion to WiFi, and similar wireless communication systems, is one of the largest technology rollouts in history, and yet virtually no public consultation with citizens or local governments was carried out in advance. Parallel to this, the World Health Organization (WHO; May 31, 2011) has classified the radiofrequency radiation used as a possible carcinogen, and the world's insurance companies have abandoned ship by not insuring or reassuring for health effects of electromagnetic fields. Around the world WiFi companies continue to install their antennas, often without public awareness or consent. This is a genuine threat to our democracy and informed decision-making.

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In summary, there is already a huge number of scientific papers clearly demonstrating adverse health effects generated by the WiFi radiofrequency signals; and the FCC/ICNIRP standards are not applicable to such radiofrequency signals. Please, do not install citywide WiFi/CitylinkLA in order to protect the health and well-being of your citizens!

Your work is – to say the least – of the greatest importance. By choosing not to proceed with the CityLinkLA project, you may save lives, as well as protect the general health, for now and for the future. That is what counts.

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It is a great honour to communicate with you! *GOOD LUCK!*

With my very best regards,  
Yours Sincerely,

A handwritten signature in blue ink, appearing to read 'Olle Johansson'.

Olle Johansson, PhD, Associate Professor

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